

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>PCT0424ND</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/JP2004/012007</b>	International filing date (day/month/year) <b>20.08.2004</b>	Priority date (day/month/year) <b>02.09.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>F21V8/00, G02F1/1335, 1/13357, 1/13363 // F21Y103:00</b>		
Applicant <b>NITTO DENKO CORPORATION</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>10</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input checked="" type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012007

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
    - ☐ international search (Rule 12.3 and 23.1(b))
    - ☐ publication of the international application (Rule 12.4)
    - ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
  - ☒ the international application as originally filed/furnished
  - ☐ the description:
    - pages \_\_\_\_\_ as originally filed/furnished
    - pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
    - pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☐ the claims:
    - nos. \_\_\_\_\_ as originally filed/furnished
    - nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
    - nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
    - nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☐ the drawings:
    - sheets \_\_\_\_\_ as originally filed/furnished
    - sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
    - sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
  - ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
  - ☐ the description, pages \_\_\_\_\_
  - ☐ the claims, nos. \_\_\_\_\_
  - ☐ the drawings, sheets/figs \_\_\_\_\_
  - ☐ the sequence listing (*specify*): \_\_\_\_\_
  - ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - ☐ the description, pages \_\_\_\_\_
  - ☐ the claims, nos. \_\_\_\_\_
  - ☐ the drawings, sheets/figs \_\_\_\_\_
  - ☐ the sequence listing (*specify*): \_\_\_\_\_
  - ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012007

## Box No. IV Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
  - ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☐ neither restricted the claims nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
- ☐ complied with.
  - ☒ not complied with for the following reasons:

See Supplemental Box.

4. Consequently, this report has been established in respect of the following parts of the international application:

☒ all parts.

☐ the parts relating to claims Nos. \_\_\_\_\_

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012007

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	2-7, 9-11, 13-23	YES
	Claims	1, 8, 12, 24	NO
Inventive step (IS)	Claims	14-19	YES
	Claims	1-13, 20-24	NO
Industrial applicability (IA)	Claims	1-24	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
Document 1:	JP 2001-215505 A (Omron Corp.), 10 August 2001		
Document 2:	JP 2000-214460 A (Sharp Corp.), 04 August 2000		
Document 3:	JP 2003-43460 A (Fuji Photo Film Co., Ltd.), 13 February 2003		
Document 4:	JP 02-242202 A (Toppan Printing Co., Ltd.), 26 September 1990		
Document 5:	JP 10-54909 A (Nitto Denko Corp.), 24 February 1998		
Document 6:	JP 09-506985 A (Minnesota Mining and Manufacturing Co.) , 08 July 1997		
Document 7:	JP 09-146092 A (Hitachi, Ltd.), 06 June 1997		
<p>The invention set forth in claims 1, 8, 12 and 24 lacks novelty.</p> <p>The light source device disclosed in document 1 (page 7, right column, line 9 to page 8, left column, line 38 and fig. 12) cited in the international search report is clearly "a light source device using a sidelight-type backlight light-guide plate, wherein on one surface of the sidelight-type backlight light-guide</p>			

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012007

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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plate is disposed a transmissivity angle dependence layer which transmits orthogonal incident light and reflects oblique incident light and on the other surface of the sidelight-type backlight light-guide plate is disposed a reflecting plate having a repetitive inclined structure."

Here, document 1 does not make any explicit disclosure concerning whether "the linearly polarized light separation plate" is a transmissivity angle dependence layer "which transmits orthogonal incident light and reflects oblique incident light".

However, it is deemed, when interpreted in the light of common technical knowledge in this field, that an example constituting such a "linearly polarized light separation plate" is one which includes an optical layer having angle dependency as to transmissivity and reflectance, such as a deposition-type band-pass filter utilizing the Brewster angle. And, it is obvious in the light of the present description (especially paragraphs 0004-0006), that such an optical layer is included in a transmissivity angle dependence layer "which transmits orthogonal incident light and reflects oblique incident light".

Therefore, the invention set forth in claims 1 and 24 lacks novelty. The argument applies to the invention set forth in claims 8 and 12.

The inventions set forth in claims 1-13 and 20-24 do not involve an inventive step.

Claims 1 and 23

The light source device disclosed in document 2 (page 6, left column, line 33 to page 7, right column,

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012007

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

line 30 and fig. 1-3) cited in the international search report is no different from the light source set forth in present claim 1 with the exception of the feature wherein on one side of the sidelight-type backlight light-guide plate is disposed a transmissivity angle dependence layer which transmits orthogonal incident light and reflects oblique incident light.

However, the feature wherein on one side of the sidelight-type backlight light-guide plate is disposed a transmissivity angle dependence layer which transmits orthogonal incident light and reflects oblique incident light is disclosed in document 3 (page 4, right column, line 20 to page 10, left column, line 15; fig. 1, 3 and 5-9).

Since documents 2 and 3 belong to the same technical field of liquid crystal display elements that use backlight, it would be obvious to a person skilled in the art to combine the invention disclosed in these documents.

## Claim 2

The feature wherein the "transmissivity angle dependence layer" is a "near-infrared ray reflecting filter" is not explicitly disclosed in documents 2 and 3. However, the reflective wavelength band of a "transmissivity angle dependence layer" is a matter of design that can be determined by a person skilled in the art and hence, it would be easy for a person skilled in the art to include the scope of "near-infrared rays" in the reflective wavelength band of the "transmissivity angle dependence layer".

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012007

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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## Claims 3-5

Document 3 clearly discloses the feature wherein the "transmissivity angle dependence layer" is a "band-pass filter corresponding to the emission spectrum of the light source, which comprises multiple thin film layers formed through deposition and having different refractive indices."

## Claims 6-7

The feature wherein "the filter" is "a stretched body of laminate body of multiple thin films having different refractive indices and formed of a resin material" is disclosed in document 4 (page 2, upper left column, lines 8 to 15).

## Claims 8-11

Neither document 2 nor document 3 explicitly discloses the feature of "at least one cholesteric liquid crystal polymer that transmits some circular polarized light, while selectively reflecting other circular polarized light". However, this feature is disclosed in document 5 (page 2, right column, line 49 to page 7, right column, line 10; fig. 1-5) and it would be easy for a person skilled in the art to add this feature to a "transmissivity angle dependence layer".

## Claims 12-13

Neither document 2 nor document 3 explicitly discloses the feature of "a laminate body of birefringent anisotropic bodies that transmits some linearly polarized orthogonal light and selectively reflects some of said light". However, this feature is disclosed in document 6

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/012007

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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(page 6, lines 23-24; page 19, line 20 to page 32, line 15; fig. 2, 4 and 14-15) and it would be easy for a person skilled in the art to add this feature to a "transmissivity angle dependence layer".

## Claims 20-22

Neither document 2 nor document 3 explicitly discloses the feature of "positioning a phase differential layer having the function of eliminating polarized light between the sidelight-type backlight light-guide plate and the reflective plate". However, this feature is disclosed in document 7 (page 3, right column, line 47 to page 5, right column, line 38; fig. 1-3).

## Claim 24

A "transmission-type liquid crystal display device comprising at least a light source device, a liquid crystal cell and polarizing plates positioned on both sides of the liquid crystal cell" is disclosed in document 6.

The invention set forth in claims 14-19 is novel and involves an inventive step.

A "polarizing element wherein a phase differential layer is positioned between at least two layers of reflective and polarizing elements having wavebands for selectively reflecting polarized light that overlap" is not disclosed in any of the documents cited in the international search report. Moreover, it is not obvious to a person skilled in the art.



## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

IV. 3.

The subject matter common to independent claims 1, 8 is deemed to be the feature of "a light source device using a sidelight-type backlight light-guide plate, wherein on one surface of a sidelight-type backlight light-guide plate is disposed a transmissivity angle dependence layer which transmits orthogonal incident light and reflects oblique incident light and on the other surface of the sidelight-type backlight light-guide plate is disposed a reflecting plate having a repetitive inclined structure." The light source device disclosed in document JP 2001-215505 A (Omron Corp.), 10 August, 2001 (10.08.02), from page 7, right column, line 9 to page 8, left column, line 38, fig. 12, cited by the international search clearly discloses the feature of "a light source device using a sidelight-type backlight light-guide plate, wherein on one surface of a sidelight-type backlight light-guide plate is disposed a linearly polarized light separation plate and on the other surface of the sidelight-type backlight light-guide plate is disposed a reflecting plate having a repetitive inclined structure." Here, although the Document contains no explicit description as to in what material or in what structure "the linearly polarized light separation plate is made," it is deemed, when interpreted in the light of common technical knowledge in this field, that an example constituting such "linearly polarized light separation plate is one which includes an optical layer having angle dependency as to transmissivity and reflectance, such as

## Supplemental Box

a deposition-type band-pass filter utilizing the Brewster angle. And, it is obvious in the light of optical principles and is well known that such an optical layer, though capable of utilizing orthogonal incident light at high transmissivity, causes oblique incident light to be generally reflected rather than transmitted, irrespective of the direction of polarization.

Accordingly, the subject matter common to independent claims 1, 8 is obviously not novel. As a result, the matter does not clearly contribute over the prior art, and therefore the subject matter is not considered a special technical feature as described in the second sentence of PCT Rule 13. 2.

Therefore, since independent claims 1, 8 do not have a technical relationship as described in PCT Rule 13. 2, it is obvious that these inventions do not comply with the requirement of unity of invention.